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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,474	02/26/2002	Paul Davids	10559-682001 / P13240	4879

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EXAMINER
PETKOVSEK, DANIEL J

ART UNIT	PAPER NUMBER
2874	

DATE MAILED: 07/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Offic Action Summary	Application No.	Applicant(s)	
	10/085,474	DAVIDS ET AL.	
	Examiner	Art Unit	
	Daniel J Petkovsek	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 May 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) *10-30* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *May 19, 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Brian Healy
Primary Examiner

DETAILED ACTION

This office action is in response to the amendment filed on May 19, 2003. In accordance with the amendment, claims 1 and 6 have been amended. The new abstract has been acknowledged.

Drawings

1. The corrected or substitute drawings were received on May 19, 2003. These drawings are acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Cox et al. US 2003/0103542 A1.

Cox et al. US 2003/0103542 A1 teaches (ABS, [0012], [0053]-[0054], figure 6, etc.) a waveguide comprising: a waveguide core 82 having a bottom surface and a top surface that defines an angle, and a cladding layer 80 adjacent to the bottom surface of the waveguide 82, the cladding having a thickness equal to or greater than an evanescent tail of a mode to be transmitted along the waveguide core 82, which clearly, fully meets Applicant's claimed limitations.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bazylenko et al. U.S.P. No. 6,154,582, and further in view of Cox et al. US 2003/0103542 A1.

Bazylenko et al. U.S.P. No. 6,154,582 teaches (Fig. 5, column 7 line 55 through column 8 line 7, claim 7) a waveguide comprising: a top surface 15 of the waveguide 14 that defines a 45 degree angled mirror, causing total internal reflection of the waveguide core. The mirror 15 couples light from the waveguide core to a photodiode 9, the properties of which are inherent in a photodiode. Regarding claim 9, the waveguide 14 is disposed above a substrate and the mirror directs a mode propagated through the core into the semiconductor substrate 8.

Bazylenko et al. '582 does not explicitly teach that the cladding or buffer layer (13 or 16) adjacent to the bottom surface of the waveguide has a thickness equal to or greater than an evanescent tail of a mode to be transmitted along the core.

Cox et al. US 2003/0103542 A1 teaches (ABS, [0012], [0053]-[0054], figure 6, etc.) a waveguide comprising: a waveguide core 82 having a bottom surface and a top surface that defines an angle, and a cladding layer 80 adjacent to the bottom surface of the waveguide 82, the cladding having a thickness equal to or greater than an evanescent tail of a mode to be transmitted along the waveguide core 82. Cox et al. '542 teaches that in order to prevent guided modes from entering adjacent optoelectronic devices (such as the photodiode of Bazylenko

'582), the cladding/buffer layer must be of a sufficient thickness to prevent an evanescent tail from entering adjacent layers.

Since Bazylenko et al '582 and Cox et al.' 542 are both from the same field of endeavor, the purpose of preventing an evanescent tail from entering adjacent layers by having cladding/buffer with sufficient thickness, disclosed by Cox et al. '542, would have been recognized in the pertinent art of Bazylenko et al. '582 to ensure proper functionality of the adjacent photodiode.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to ensure a cladding/buffer layer at least thick enough to prevent an evanescent tail from entering adjacent layers to ensure there is no interference in the apparatus.

Regarding claims 4-6, Bazylenko et al. '582 does not explicitly teach that the waveguide is coupled to a phototransistor. It would have been obvious at the time the invention was made to a person having ordinary skill in the art that any well known photoreceiver/photodetector could be used in the device of Bazylenko et al. '582 in place of the photodiode as disclosed.

6. Claims 1-3, and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tran et al. U.S.P. No. 6,323,480, and further in view of Cox et al. US 2003/0103542.

Tran et al. U.S.P. No. 6,323,480 teaches (ABS, Fig 1) a waveguide comprising: a core 26 having a top surface 32 that defines an angle and acts as a reflector to create total internal reflection of the waveguide core 26, the device comprising photodetectors (such as photodiodes) in which the core 26 is coupled to the photodiode, the properties of which are inherent.

Regarding claim 9, the waveguide 26 is disposed above a substrate and the mirror directs a mode propagated through the core into the substrate.

Tran et al. '480 does not explicitly teach that the cladding 24 adjacent to the bottom surface of the waveguide has a thickness equal to or greater than an evanescent tail of a mode to be transmitted along the core.

Cox et al. US 2003/0103542 A1 teaches (ABS, [0012], [0053]-[0054], figure 6, etc.) a waveguide comprising: a waveguide core 82 having a bottom surface and a top surface that defines an angle, and a cladding layer 80 adjacent to the bottom surface of the waveguide 82, the cladding having a thickness equal to or greater than an evanescent tail of a mode to be transmitted along the waveguide core 82. Cox et al. '542 teaches that in order to prevent guided modes from entering adjacent optoelectronic devices (such as the photodetector of Tran et al. '480), the cladding/buffer layer must be of a sufficient thickness to prevent an evanescent tail from entering adjacent layers.

Since Tran et al. '480 and Cox et al.' 542 are both from the same field of endeavor, the purpose of preventing an evanescent tail from entering adjacent layers by having cladding/buffer with sufficient thickness, disclosed by Cox et al. '542, would have been recognized in the pertinent art of Tran et al. '480 to ensure proper functionality of the adjacent photodiode.

It would have been obvious, at the time the invention was made, to a person having ordinary skill in the art to ensure a cladding/buffer layer at least thick enough to prevent an evanescent tail from entering adjacent layers to ensure there is no interference in the apparatus.

Conclusion

Applicant's amendment filed May 19, 2003, has been fully considered. Claims 1-9 stand rejected.

Regarding claim 1, it is noted that any non-circular waveguide would have a top surface that, broadly, defines an angle, be it 180 degrees.

Applicant's amendment, "a cladding layer adjacent to the bottom surface, the cladding layer having a thickness equal to or greater than an evanescent tail of a mode to be transmitted along the wave guide core", has necessitated a new search. Accordingly, new rejections have been made to the new prior art found (Cox et al. '542, and PTO-892 references). These rejections have been fully addressed above.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, with respect to the state of the art of optical waveguides having buffer/cladding layers that have a desired thickness equal to or greater than the evanescent tail of a mode to be transmitted in the waveguide core: PTO-892 form references A, and C-F.

Reference A to Pauli et al. (see column 8 lines 16-35).

Reference C to Fork et al. (see column 4 lines 62-67).

Reference D to Norwood et al. (see column 6 line 57 through column 7 line 9).

Reference E to Kowalczyk et al. (see column 16 lines 23-31).

Reference F to Hung et al. (see column 2 line 63 through column 3 line 4).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J Petkovsek whose telephone number is (703) 305-6919. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308-4819. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 872-9321.

Daniel Petkovsek
July 23, 2003

Brian Healy
Primary Examiner